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16. ABSTRACT

With a statewide commitment to achieving Vision Zero, Caltrans has embraced the Safe System approach and will be making a holistic and comprehensive effort to prioritize multi-modal safety. To support Caltrans' pivot to the Safe System approach, and based on recommendations from the Zero Fatalities Task Force, the agency is exploring Safe System strategies for potential adoption. One such strategy is setting speed limits based on multi-modal and land use context rather than the 85th percentile of current motorist speeds. This report explores examples of agencies that have taken a Safe System Approach to speed limit setting through strategies that paired speed limit changes with complementary countermeasures. For case studies in which evaluation data was published, this report includes discussion of the outcomes.

This report includes the following findings:

- Instead of relying on the 85th percentile alone to set speeds, some agencies prioritize a context-based methodology, weighting factors such as roadway type, land use context, crash history, and pedestrian and bicycle activity.
- To achieve broader vehicle speed reduction, posted speed limit reduction should be accompanied by additional interventions beyond informational media.
- Speed limit changes are effective in reducing top-end speeders, even when only accompanied by additional speed limit signage and an informational media campaign.
- Intervention packages, like speed limit reductions and additional speed limit signs, have been shown to reduce the number and severity of collisions and observed vehicle speeds, particularly in urban and high pedestrian activity contexts.
- The most effective, systemic approach to speed reduction evaluated in this report is the pairing of speed limit reductions with speed safety cameras.

- State-level policy that allows local agencies flexibility in speed limit setting can enable agencies to tailor context-based speed management solutions using the Safe System Approach.
- The California Case Studies demonstrate how cities can use existing California laws to implement potentially under-utilized speed limit adjustments and safety measures.
- The most notable limitations to adopting the proven approaches in these case studies in California include the following:
  - Speed safety cameras are not currently legal within California
  - The complexity of California's speed limit setting options could create administrative barriers for local agencies or stakeholders
  - A relative lack of precedent examples of Safe System Approaches to speed limit setting within the state

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# A Safe System Approach to Speed Limit Setting - Case Studies Report and Recommendations

Prepared for:

Berkeley SafeTREC



August 7, 2023

Prepared by:

FEHR  PEERS

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# Executive Summary

This report explores examples of agencies that have taken a Safe System Approach to speed limit setting through strategies that paired speed limit changes with complementary signage, design, enforcement, or educational efforts. The twelve case studies included in this report serve as examples of interventions that support a Safe System Approach to Speed Limit Setting.

This report includes both *Beyond California Case Studies* and *California Case Studies*. The *Beyond California Case Studies* show what is possible beyond the California Vehicle Code, including other states' legislation and local implementation. Many of the case studies in that section were selected because they include the quantification of outcomes of a Safe System Approach to Speed Limit Setting. The *California Case Studies* section includes California examples of a Safe System Approach to Speed Limit Setting. The purpose of that section is to investigate what interventions have been implemented within California's legislative framework, including the California Vehicle Code, both before and after [Assembly Bill \(AB\) 43](#).

The case study analysis in this report includes the following findings:

- To achieve a broader vehicle speed reduction effect, posted speed limit reduction needs to be accompanied by additional interventions beyond informational media.
- Intervention packages that feature speed limit changes as a primary element have been shown to be helpful in reducing the number of top-end speeders, including in cases where the speed limit change was accompanied only by additional speed limit signage and an informational media campaign announcing the change.
  - This was observed in the Seattle Citywide Default Speed Limit Reduction, Portland Residential and Business District 20 mph Speed Limits, and City of Boston Default Speed Limit Reduction case studies
  - Because the likelihood of a collision resulting in a severe or fatal injury (KSI) increases with speed, this reduction could be meaningful in protecting vulnerable road users.
- Packages of interventions, such as speed limit reductions and an increase in the number of speed limit signs, have been shown to reduce the number and severity of collisions and observed vehicle speeds, particularly in urban contexts and areas with high pedestrian activity.
  - Examples in this report include additional speed limit signage in Seattle, Portland, and Boston, speed humps in New York, and traffic diversion elements, turn restrictions, stop signs, chicanes, wayfinding signs, and pavement markings in San Francisco.
- The most effective, systemic approach to speed reduction evaluated in this report is the pairing of speed limit reductions with speed safety cameras in New York City.
- The Beyond California Case Studies demonstrate the safety benefits of a Safe System Approach to setting speed limits. Instead of relying on the 85<sup>th</sup> percentile alone to set speeds, agencies such as the States of Washington and Oregon, the City of Seattle, the City of Brookings, and the City of

Portland prioritize a context-based methodology, heavily weighting factors such as roadway type, land use context, crash history, and pedestrian and bicycle activity to establish speed limits.

- The Safe System approach to speed limit setting can involve temporary or quick build treatments for faster deployment.
  - San Francisco's "Slow Streets" program exemplifies the potential of quick, low-cost, educational campaigns in promoting safe road behavior without necessarily adjusting speed limits or engineering elaborate countermeasures. Such interventions could also be deployed alongside speed limit setting adjustments.
- State-level policy that allows local agencies flexibility in speed limit setting can enable agencies to tailor context-based speed management solutions using the Safe System Approach.
- Focusing on vulnerable populations, such as school children, seniors, and unhoused persons, supports the "Humans Are Vulnerable" principle of the Safe System Approach.
  - Both Sacramento and San Francisco emphasized the importance of safeguarding these users through proactive speed limit adjustments and safe road designs. Sacramento's focus on reducing speed limits around schools exemplifies the value of protecting vulnerable children, while San Francisco's Tenderloin project targeted a dense urban neighborhood with a high proportion of unhoused residents.
- The California Case Studies demonstrate how cities can use existing California laws to implement potentially under-utilized speed limit adjustments and safety measures. The most notable limitations to adopting the proven approaches in these case studies in California include the following:
  - Speed safety cameras are not currently legal within California
  - The complexity of California's speed limit setting options could create administrative barriers for local agencies or stakeholders
  - A relative lack of precedent examples of Safe System Approaches to speed limit setting within the state
- *Recommendations to SafeTREC* include potential actions building upon the concepts of "Context Comes First" and "Redundancy is Crucial in a Safe System"



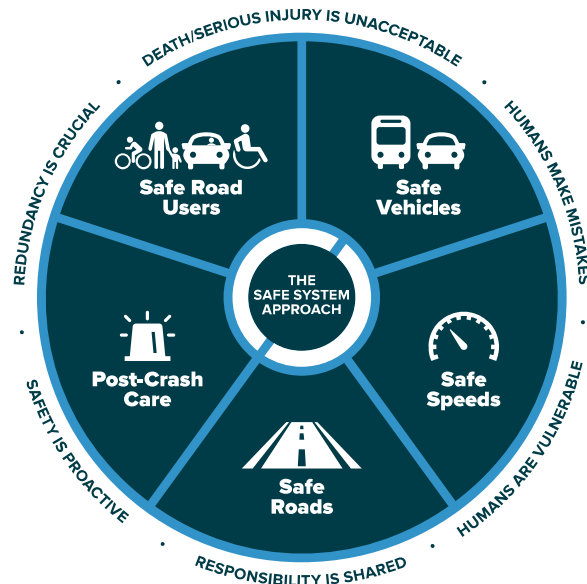
# Introduction

## The Safe System Approach

The U.S. Department of Transportation (USDOT) has adopted [the Safe System Approach](#) as the foundation for [the National Roadway Safety Strategy](#) to eliminate deaths and serious injuries on the nation's roadways. The Safe System Approach focuses on five elements of safe transportation systems, as shown in **Figure 1**.

**Safe Speeds • Safe Road Users • Safe Roads • Safe Vehicles • Post-Crash Care**

**Figure 1: Safe System Approach Principles and Key Elements<sup>1</sup>**



Consistent with national best practice, Caltrans has set a state Vision Zero policy and has embraced the Safe System approach consistent with that. In 2022, Caltrans enacted Director's Policy 36 (DP-36), with the intent of establishing a corporate expectation to prioritize safety to achieve the agency's goal of zero fatalities and serious injuries by 2050<sup>2</sup>.

A key pivot with the Safe System Approach from conventional safety practices is a focus on eliminating severe and fatal collisions (not all collisions) and doing so proactively. This quickly leads to a prioritization

<sup>1</sup> Zero Deaths and Safe System, Federal Highway Administration, US Department of Transportation

<sup>2</sup> Director's Policy 36 (DP-36), California Department of Transportation, Effective February 15, 2022

of vulnerable road users, and a primary strategy of speed reduction, because of the outsized role vehicle speed plays in vulnerable road user severe injury risk.

To support the pivot to the Safe System approach, and based on recommendations from the Zero Fatalities Task Force<sup>3</sup>, Caltrans is exploring a range of Safe System strategies for potential adoption. One such strategy is setting speed limits based on multi-modal and land use context rather than the 85<sup>th</sup> percentile of current motorist speeds. This report explores examples of agencies that have taken a Safe System Approach to speed limit setting through strategies that paired speed limit changes with complementary signage, design, enforcement, or educational efforts. For case studies in which evaluation data was published, this report includes discussion of the outcomes of those interventions as they relate to speed reduction and other metrics reported by the agency.

**Figure 2: Safe System Principles<sup>4</sup>**



Death/Serious Injury  
is unacceptable



Humans make  
mistakes



Humans are  
vulnerable



Responsibility is  
shared



Safety is proactive



Redundancy  
is crucial

## Report Organization

This report is organized into four sections: *Beyond California Case Studies*, *California Case Studies*, *Agency Conversations*, and *Recommendations to SafeTREC*.

Each case study includes a study-specific version of **Table 1**, which summarizes its key considerations. These considerations are discussed in more detail in the case study's *Background* (if applicable), *Summary*, and *Framework for California* sections.

<sup>3</sup> CalSTA Report of Findings, California State Transportation Agency (CalSTA) AB 2363 Zero Traffic Fatalities Task Force, January 2020

<sup>4</sup> Zero Deaths and Safe System, Federal Highway Administration, US Department of Transportation

**Table 1: Sample Table for Key Case Study Considerations**

Consideration	Key Points
<b>Context</b>	What is the context of this corridor or area? <i>Examples:</i> <ul style="list-style-type: none"> <li>• Adjacent land uses</li> <li>• Activity generators</li> <li>• Active mobility facilities</li> </ul>
<b>Policies or Legislation</b>	What policies enabled this intervention? <i>Examples:</i> <ul style="list-style-type: none"> <li>• State bills</li> <li>• Local policies</li> </ul>
<b>Reason for Intervention</b>	Why was this area selected for a Safe System intervention? <i>Examples:</i> <ul style="list-style-type: none"> <li>• Collision history</li> <li>• Sociodemographic context</li> </ul>
<b>Complementary Countermeasures</b>	What safety countermeasures were implemented to complement the speed limit adjustment? <i>Examples:</i> <ul style="list-style-type: none"> <li>• Signage</li> <li>• Emerging technology</li> <li>• Enforcement</li> </ul>
<b>Speed Limit Setting Factors</b>	What factors were considered for determining the speed limit change? <i>Examples:</i> <ul style="list-style-type: none"> <li>• Observed speed</li> <li>• Roadway design</li> <li>• Land use context</li> </ul>
<b>Measured Outcomes</b>	What outcomes were measured before and after the intervention? <i>Examples:</i> <ul style="list-style-type: none"> <li>• Collisions</li> <li>• Observed speed</li> <li>• Occurrences of speeding</li> </ul>

## Beyond California Case Studies

The first section, titled *Beyond California Case Studies*, includes examples, listed in **Table 2**, from outside of the state. These studies show what is possible beyond the California Vehicle Code, including other states' legislation and local implementation. Many of the case studies in this section were selected because they include the quantification of outcomes of a Safe System Approach to Speed Limit Setting.

**Table 2: Beyond California Case Studies**

	Case Study	Location	Year
<b>1</b>	Washington HB 1045	State of Washington	2013
<b>2-4</b>	Seattle Citywide Default Speed Limit Reduction	Seattle, WA	2015
<b>5</b>	Oregon Speed Zones	State of Oregon	2020
<b>6</b>	Chetco Avenue Speed Limit Reduction	Brookings, OR	2021
<b>7</b>	Portland Residential and Business District 20 mph Speed Limits	Portland, OR	2017
<b>8</b>	Boston Default Speed Limit Reduction	Boston, MA	2017
<b>9</b>	New York City Speed Safety Cameras	New York, NY	2013

**Table 3** (next page) highlights the evaluated outcomes recorded through before after evaluation of the *Beyond California Case Studies*. Further details of these interventions and the evaluated outcomes are discussed in each case study's respective section.

**Table 3: Beyond California Case Study Evaluated Outcomes**

	Case Study	Metric	Outcome
2-4	Seattle Citywide Default Speed Limit Reduction  (Table shows Citywide only, corridor and urban village discussed in 2-4. <i>Seattle Citywide Default Speed Limit Reduction</i> )	Total Collisions	22% fewer
		KSI Collisions	18% fewer
		50 <sup>th</sup> Percentile Speeds	10% reduction
		85 <sup>th</sup> Percentile Speeds	7% reduction
		40+ mph Speeders	54% reduction
7	Portland Residential and Business District 20 mph Speed Limits	Drivers Exceeding 25 mph	0.53 percentage points fewer
		Drivers Exceeding 30 mph	1.66 percentage points fewer
		Drivers Exceeding 35 mph	0.52 percentage points fewer
8	City of Boston Default Speed Limit Reduction	Mean Speeds	0.3% reduction
		Drivers Exceeding 25 mph	2.1% fewer
		Drivers Exceeding 30 mph	0.5% fewer
		Drivers Exceeding 35 mph	22.4% fewer
9	New York City Speed Safety Cameras	Occurrences of Speeding	73% fewer
		Injury Collisions	35.3% decrease for new camera corridors, compared to 28.6% decrease for control corridors

### California Case Studies

The second section, *California Case Studies*, is comprised of local California examples of a Safe System Approach to Speed Limit Setting. The purpose of this section is to investigate what interventions have been implemented within California’s legislative framework, including the California Vehicle Code, both before and after [Assembly Bill \(AB\) 43](#), but for a variety of reasons, are not commonplace. The *California Case Studies* discussed in this report are listed in **Table 4**.

**Table 4: California Case Studies**

	Case Study	Location	Year
10	Sacramento Vision Zero: Reducing School Speed Zones	Sacramento, CA	2019
11	Tenderloin Speed Limits and No Turn on Red	San Francisco, CA	2021
12	San Francisco Slow Streets	San Francisco, CA	2020

**Table 5** highlights the evaluated outcomes recorded through before after evaluation of the *California Case Studies*. Further details of these interventions and the evaluated outcomes are discussed in each case study’s respective section.

**Table 5: California Case Study Evaluated Outcomes**

	<b>Case Study</b>	<b>Metric</b>	<b>Outcome</b>
<b>11</b>	Tenderloin Speed Limits and No Turn on Red	Corridor Median Vehicle Speed	No observed change
<b>12</b>	San Francisco Slow Streets	Median Vehicle Speed	14% decrease
		Number of Collisions	36% decrease

### **Agency Conversations**

To further explore Safe System Approaches to speed limit setting, Fehr & Peers initiated conversations with staff from five public agencies, ranging from state departments of transportation to municipalities. While the initial intent of these conversations was to obtain before and after data for programs implemented by those agencies, most conversations evolved into a sharing of experiences and considerations through a primarily qualitative lens due to a current lack of evaluation data. These conversations included nearly a dozen staff members in total, representing the City of Cambridge, Massachusetts; the City of Fremont, California; the Oregon Department of Transportation (ODOT); Clackamas County, Oregon; and the San Francisco Municipal Transportation Agency (SFMTA). These conversations are summarized in the *Agency Conversations* section of this report.

### **Recommendations to SafeTREC**

The fourth section, *Recommendations to SafeTREC* includes a table of considerations for applying a Safe System Approach to Speed Limit Setting. This section is intended to provide considerations, prompted by the case studies in this report, that support or build upon existing practice in California (including legislation introduced by AB 43) through a Safe System lens. These recommendations will inform more specific policy recommendations in the Policy Brief on this topic for Caltrans, to be developed by SafeTREC.

# Beyond California Case Studies

The following case studies are examples of how other states and localities have taken a Safe System Approach to setting speed limits. All the *Beyond California Case Studies* feature the common attribute of a proactive, context-based speed limit setting methodology that does not rely on 85<sup>th</sup> percentile speeds. Of note, all the local case studies include “complementary countermeasures” - interventions that were introduced to complement the speed limit modification, following the “Redundancy is Crucial” principle of the Safe System Approach.

Many of the *Beyond California Case Studies* are from Washington or Oregon, as these states were among the first to pass legislation that increased local flexibility in speed limit setting.

## 1. Washington HB 1045 and SB 5687

<b>Location</b>	<b>Implementation Year</b>
State of Washington	2013

**Table 6: Washington HB 1045 and SB 5687 - Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• Statewide</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Washington HB 1045</li> <li>• Washington SB 5687</li> <li>• Washington SB 5974</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Desire for local flexibility</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Complementary countermeasures applied at local project level</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• 50<sup>th</sup> percentile speed</li> <li>• Roadway type</li> <li>• Land use</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• Outcomes measured at local project level</li> </ul>

Washington House Bill (HB) 1045 gives cities and towns greater authority to adjust speed limits to improve traffic safety. Notably, the bill provides local agencies the opportunity to lower speed limits (but to not less than 20 mph) on non-arterial highways in business and residential districts without requiring an engineering and traffic investigation (E&TI). The 2-4. *Seattle Citywide Default Speed Limit Reduction* case study provides helpful insight into how a local jurisdiction enacted citywide policy to implement HB 1045 provisions, as well as a before and after evaluation summary of observed speed and collision rates following a speed limit intervention.

### Background

Washington HB 1045, passed in 2013, amended the existing speed limit law to expand local jurisdictions' authority to establish contextually based speed limits. The Revised Code of Washington (RCW) establishes speed limits for a variety of road types, ranging from 25 mph to 60 mph (RCW 46.61.400). HB 1045 allows local authorities to alter speed limits beyond what is established in RCW 46.61.400, most notably permitting the reduction of speed limits to as low as 20 mph on non-arterial highways within business or residential districts without an E&TI. Local authorities can also apply the HB 1045 law to alter speed limits on state highways, though such interventions must be approved by the Secretary of the Department of Transportation.

As stated in the HB 1045 Final Bill Report, speed limits in Washington were previously established based on roadway type (25, 50, and 60 mph for city streets, county roads, and state highways, respectively), which could then be increased or decreased based on an E&TI. Washington's legislation does not specifically define the components of an E&TI, though the Final Bill Report notes that the investigations usually include 85<sup>th</sup> percentile speed, road characteristics, parking practices, pedestrian activity, roadside development and environment, history of collisions, and other factors.



For highways, HB 1045 permits local authorities to adjust speed limits where the “maximum speed permitted under RCW 46.61.400 or 46.61.440 is greater or less than is reasonable and safe under the conditions found to exist upon a highway or part of a highway”<sup>5</sup> based on an E&TI. Given these conditions, local authorities can increase speed limits to as high as 60 mph or decrease speed limits to as low as 20 mph.

State Senate Bill 5687, which went into effect in June 2022, builds on HB 1045 by expanding authority to establish 20 mph speed limits from “cities and towns” to all “local authorities” and from non-arterial highways in business and residence districts to all non-arterial highways. SB 5687 also allows the state Secretary of Transportation to establish a maximum 20 mph speed limit on non-arterial highways without an E&TI. As noted in the SB 5687 House Bill Analysis, “local authorities” includes every county, municipal, and other local public board or body having authority to adopt local police regulations. SB 5687 was not in effect during the following Seattle cases studies.

It is important to note that speed safety cameras to enforce speed limits are legally permitted in Washington, albeit with limitations. Previously, these cameras were only used in school zones. To provide context on the scale, the City of Seattle will have 19 photo-enforced school speed zones by the end of the 2023 school year<sup>6</sup>. However, starting from July 1, 2022, due to the enactment of SB 5974, the use of speed safety cameras can be extended to include public park speed zones and hospital speed zones<sup>7</sup>.

#### *Relevant Resources*

- [State House Bill \(HB\) 1045](#)
- [Municipal Research and Services Center of Washington \(MRSC\) Speed Limits and Traffic Calming Article](#)
- [HB 1045 Final Bill Report](#)
- [Washington State Legislature RCW 46.61.400 and 46.62.440](#)
- [SB 5687 Bill Analysis](#)
- [Seattle Automated Photo Enforcement Program – School Speed Zone Cameras](#)
- [SB 5974 Bill Report](#)

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<sup>5</sup> Washington State House Bill 1045 (2013).

<sup>6</sup> Automated Photo Enforcement Program – School Zone Speed Cameras, [seattle.gov](http://seattle.gov)

<sup>7</sup> Washington SB 5974 Final Bill Report

## 2-4. Seattle Citywide Default Speed Limit Reduction

<b>Location</b>	<b>Implementation Year</b>
Seattle, Washington	2015

**Table 7: Seattle Citywide Default Speed Limit Reduction - Key Considerations**

Consideration	Key Points
<b>Context</b>	<p><b>Citywide</b></p> <ul style="list-style-type: none"> <li>• Arterials</li> <li>• Non-arterials</li> <li>• “Urban Villages”</li> </ul> <p><b>Greenwood Avenue</b></p> <ul style="list-style-type: none"> <li>• Business district</li> <li>• Adjacent land uses: multifamily housing, restaurants/shops</li> <li>• Vicinity land use: dense suburban, single family residential</li> <li>• Roadway configuration               <ul style="list-style-type: none"> <li>◦ One travel lane each direction, two-way left-turn lane, parallel parking lanes, bike lane</li> <li>◦ Uncontrolled crosswalks at minor street crossings</li> <li>◦ Most minor street approaches lack marked crosswalks</li> </ul> </li> <li>• 13,000 ADT</li> </ul> <p><b>Green Lake/Roosevelt Urban Village (Multiple-Roadways)</b></p> <ul style="list-style-type: none"> <li>• Business district/residential</li> <li>• Adjacent land uses: multifamily housing, restaurants/shops, single family residential</li> <li>• Vicinity land use: dense suburban</li> <li>• Roadway configuration               <ul style="list-style-type: none"> <li>◦ Varies: Includes one divided boulevard with one travel lane in each direction, parallel parking lanes, and protected bike lanes. Other streets are one travel lane in each direction with parallel parking lanes. Also includes a one-way street with two travel lanes, one parallel parking lane, and a protected bike lane.</li> <li>◦ Mixed traffic control devices</li> <li>◦ Most minor street approaches lack marked crosswalks</li> </ul> </li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Washington HB 1045</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• High number of pedestrian collisions in Urban Villages</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Installation of additional speed limit signs</li> <li>• Installation of speed limit signs where previously unsigned</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• Collision history</li> <li>• Land use/active mobility context</li> </ul>
<p><b>Measured Outcomes</b></p> <p>(Table shows Citywide only; corridor and urban village outcomes discussed below)</p>	<ul style="list-style-type: none"> <li>• 22% fewer total collisions</li> <li>• 18% fewer KSI collisions</li> <li>• 10% reduction in 50<sup>th</sup> percentile speeds</li> <li>• 7% reduction in 85<sup>th</sup> percentile speeds</li> <li>• 54% reduction in 40+ mph speeders</li> </ul>

This case study details how the City of Seattle implemented citywide speed limit changes under HB 1045, as well as two specific locations where a post-implementation evaluation was conducted.

## Summary

### *Case Study 2: Citywide*

After adopting a Vision Zero program in 2015, the City of Seattle modified the speed limits on several arterials identified as safety corridors from 35 mph to 30 mph as permitted by HB 1045. The following year, the City updated their Municipal Code to reduce default speed limits from 25 mph to 20 mph on non-arterial streets and from 30 mph to 25 mph on arterial streets.

In 2017 and 2018 Seattle shifted their focus to Urban Villages, which are mixed-use neighborhoods that offer a variety of job and housing types.<sup>8</sup> In Seattle, 80% of pedestrian collisions occurred in these Urban Villages.<sup>9</sup> As permitted under Washington legislation, the City reduced speed limits in Urban Villages and business districts without an E&TI. Additionally, the City added new speed limit signs, consistently spaced at quarter-mile intervals in each direction, particularly on streets that previously had no speed limit signage. By June 2020, Seattle had installed new 25 mph speed limit signs on 90 miles of major streets, totaling over 200 miles of major roads with a 25-mph speed limit. The estimated cost to install the new, lower speed limit signs was about \$4,000 to \$5,000 per mile.

### Evaluated Outcomes

In an evaluation of 12 corridors, the City found that overall collisions decreased by 22% across all study locations after the speed limit reduction was implemented. 50<sup>th</sup> and 85<sup>th</sup> percentile speeds and the number of 40 or more mph speeders dropped by 10%, 7%, and 54% respectively. Collisions resulting in injury or fatality dropped by 18%. The specific collision types that decreased were not published as part of the Seattle Department of Transportation's evaluation.<sup>10</sup>

### *Case Study 3: Greenwood Avenue*

Greenwood Avenue North, which becomes Phinney Avenue North at North 67<sup>th</sup> Street, is one of the corridors along which the City took a Safe System Approach to addressing speed. This corridor is within a business activity district and is 1.3 miles long, extending from North 65<sup>th</sup> Street to North 90<sup>th</sup> Street. It is a north-south arterial street in the Greenwood and Phinney neighborhoods of Seattle with two lanes and a two-way center turn lane, bike lanes, and sidewalks in both directions. The street also serves two bus lines. The City changed the speed limit from 30 mph to 25 mph and installed new signs at quarter-mile intervals along the corridor.

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<sup>8</sup> City of Seattle. (January 2005). Urban Village Element, *Seattle's Comprehensive Plan*.

<sup>9</sup> Vision Zero: Safer Streets for Seattle, City of Seattle (presentation), 2019

<sup>10</sup> Speed Limit Case Studies, Seattle Department of Transportation, July 2020

## Evaluated Outcomes

An analysis of Greenwood Avenue North in May 2020 found that after the City implemented the interventions supportive of a Safe System, 85<sup>th</sup> percentile speeds dropped from 33.5 mph to 31.2 mph, a 7% reduction. The 50<sup>th</sup> percentile speed also dropped by 7% following the intervention. The number of cars driving 40 mph or over on the corridor decreased by 64%. Collisions on the corridor decreased by 35% after the intervention and collisions resulting in injury, serious injury, or fatality dropped by 21%.<sup>11</sup>

Given the success in reducing serious injury collisions and fatalities, Seattle continues to use speed limit reduction and complementary countermeasures as a safety strategy and has replaced speed limit signs on over 300 miles of roadways as of September 2022<sup>12</sup>.

### *Case Study 4: Green Lake/Roosevelt Urban Village*

In addition to a corridor-level approach, the City of Seattle has addressed speed concerns with an area-based geographic approach. In 2018, the City implemented a package of interventions supportive of a Safe System Approach in the Green Lake/Roosevelt Urban Village. Interventions included a speed limit reduction on 15<sup>th</sup> Avenue Northeast from 30 mph to 25 mph and the installation of 25 mph signs with quarter-mile spacing on many streets throughout the area that had previously been unsigned. This neighborhood is dense suburban with a mix of multi-family and single-family homes, as well as commercial districts. Fifteenth Avenue specifically is residential, serving primarily single-family homes. Roadway geometries of the treated roads vary. Fifteenth Avenue is a two-way street with a single travel lane in each direction, one parallel parking lane, and two protected bike lanes. Northeast Ravenna Boulevard is divided by a median with a single travel lane in each direction, two parallel parking lanes, and two bike lanes. It provides access to single family homes and multi-family homes.

## Evaluated Outcomes

After the interventions, the neighborhood saw a 24% reduction in all collisions, and a 13% reduction in injury collisions. The area also saw a 47% reduction in vehicles driving over 40 mph, and reductions in the 50<sup>th</sup> and 85<sup>th</sup> percentile speeds (2% and 4% respectively).

### *Additional-Discussion Case Studies: Northwest/North 85<sup>th</sup> Street and North/Northeast 45<sup>th</sup> Street*

Along some corridors, the City of Seattle installed speed limit signs on unsigned roadways, without any modification to the (in this case, default) speed limit. Two such corridors included Northwest/North 85<sup>th</sup> Street from 18<sup>th</sup> Avenue Northwest to Interlake Avenue North and North/Northeast 45<sup>th</sup> Street from North 46<sup>th</sup> Street to Montlake Boulevard Northeast. Both corridors had a default speed limit of 25 mph but were unsigned. Signage indicating the 25-mph speed limit was installed at quarter-mile intervals along the corridors.

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<sup>11</sup> Speed Limit Case Studies, Seattle Department of Transportation, July 2020

<sup>12</sup> Levy to Move Seattle. (2016-2022). Levy Dashboard.

## Evaluated Outcomes

After the installation of speed limit signs, the following outcomes were achieved:

- Reduction in total collisions: 39% on NW/N 85th St, 14% on N/NE 45th St
- Reduction in injury collisions: 31% on NW/N 85th St, 11% on N/NE 45th St
- Reduction in 50<sup>th</sup> percentile speeds: 3% on NW/N 85th St, 25% on N/NE 45th St
- Reduction in 85<sup>th</sup> percentile speeds: 1% on NW/N 85th St, 12% on N/NE 45th St
- Reduction in high end speeders (40 mph or more): 45% on NW/N 85th St, 66% on N/NE 45th St

## Framework for California

The Seattle case studies provide examples of how a city enacted changes under HB 1045. Because HB 1045 has a similar conceptual foundation to AB 43, these case studies provide insight into how California cities may move forward as they begin implementing flexible speed limit options under AB 43.

Additionally, these case studies show how context-based speed limit setting, like that possible under AB 43, and other improvements such as increased signage and enhanced facilities, can affect vehicular speeds, and collision frequency and severity.

The Seattle corridors also provide examples of incremental or supplemental steps toward a Safe System Approach to Speed Limit Setting. In cases where the City identified the need for modified speed limits, such as Greenwood Avenue and the Green Lake/Roosevelt Urban Village, the posted speed limit was reduced and then re-enforced with additional signage. In cases where the City determined the existing, default, speed limit to be appropriate for the context, that speed limit was communicated more clearly with signage.

Methodologically, the City prioritized major arterials near parks and libraries along high-collision corridors. As of 2021, Seattle had identified 20 of these “safety corridors.” Similarly, California jurisdictions, under AB 43, can also reduce speed limits with justification from an Engineering and Traffic Survey (E&TS) on designated Safety Corridors. Additionally, a portion of Seattle’s speed limit adjustment efforts focused on reducing speed limits on arterials from 30 mph to 25 mph and this resulted in a decrease in the number of collisions, collision severity, and observed speeds. In California, similar intervention is allowable in business or residential districts, and local jurisdictions can take advantage of this flexibility and associated benefits seen in Seattle.

## Relevant Resources

- [Vision Zero: Safer Streets for Seattle presentation](#)
- [City of Seattle Default Speed Limit Reduction](#)
- [Seattle Speed Limit Case Studies](#)

## 5. Oregon Speed Zones

<b>Location</b>	<b>Implementation Year</b>
State of Oregon	2020

**Table 8: Oregon Speed Zones - Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• Statewide</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Oregon Administrative Rules: Rule 734-020-0015</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Desire for local flexibility</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Complementary countermeasures applied at local project level</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• Functional class</li> <li>• Adjacent land use</li> <li>• 85<sup>th</sup> (rural) and 50<sup>th</sup> percentile speeds, pace limit</li> <li>• Collision history and rate</li> <li>• Average daily traffic</li> <li>• Pedestrian and bicycle activity</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• Outcomes measured at local project level</li> </ul>

In 2018, the City of Portland, as permitted under Oregon speed limit law at that time, established an ordinance lowering the speed limit on all residential streets to 20 mph. In 2020 the State of Oregon updated their speed limit setting laws and established Speed Zones. The Oregon Department of Transportation (ODOT) drew from Portland’s example when establishing their new Speed Zone standards.

The following case studies provide examples of local flexibility in establishing speed limits as permitted under Oregon law. While not all of the interventions described are currently possible under California law, they showcase opportunities for state policies to continue evolving to achieve Safe System goals.

### Background

In 2020, ODOT established a new urban speed limit-setting methodology based on 50<sup>th</sup> percentile speed, roadway context, and functional classification (Oregon Administrative Rules: Rule 734-020-0015). To further understand ODOT’s Speed Zones methodology and internal administrative experience, Fehr & Peers hosted a video call conversation with Laura Jo Prusakiewicz from ODOT on March 22, 2023. That conversation helped to inform the description of Speed Zones provided in this section.

Prior to the Speed Zones program, urban area speed limits in Oregon were set using the 85<sup>th</sup> percentile speed, with potential 10 mph reductions. With Speed Zones, the 50<sup>th</sup> percentile speed for a corridor is observed; if it is lower than 35 mph, then the speed limit is set using the contextual ranges described in **Table 9**, with some exclusions. If that speed is higher than 35 mph, the 50<sup>th</sup> percentile speed is used as the basis for the speed limit. On these roads, ODOT prioritizes speed management roadway design to address these higher observed speeds. This methodology applies to incorporated areas and “rural communities” (unincorporated communities with a town-like development pattern) and includes ODOT-owned roadways.

### Figure 3: ODOT Speed Zoning Process Flowchart

**Figure 3**, (located at the end of this section) illustrates in further detail the Speed Zone process used in Oregon. For rural areas (not “rural communities”), the 85<sup>th</sup> percentile speed is still used as a basis for speed limit setting.

Under Oregon Speed Zones, the following data must be collected to inform which speed limit within the functional class range is most appropriate:

- E&TS with 85th percentile speed, 50th percentile speeds, pace limits,<sup>13</sup> percent of traffic operating within the pace limits, and maximum speed observed
- Crash rate for the specific segment
- Average crash rate based on similar highway segments within the same functional class and the same geographical area
- Crash history over preceding three years (emphasizing fatal or serious injury crashes)
- Average daily traffic (ADT)
- Context, accompanied by a description of the type and density of adjacent land use and evaluation of context consistency
- Functional class
- Description of pedestrian and bicycle activity including, but not limited to, those on skates, scooters, and personal assistive devices
- The presence, and type of pedestrian and bicycle facilities
- Recommended speed, which must be a multiple of 5 mph
- Transit facilities
- Other information relevant to the design of a speed zone such as enforcement agency input, geometric features, public testimony, length of segments, and demographics of users

Based on the data collected, engineers can recommend a speed limit within the Speed Zones, which are a provided range of speeds for each functional class as follows in **Table 9**:

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<sup>13</sup> A pace limit is the 10-mph range containing the largest number of sample vehicles observed in a spot speed check. (OAR 734-020-0015)

**Table 9: Oregon Speed Zone Ranges**

Area Context	Functional Class	Speed Range
Urban Core	Arterial	20 mph - 25 mph
	Collector	
	Local	
Urban Mix	Arterial	25 mph – 30 mph
	Collector	20 mph – 25 mph
	Local	
Suburban Commercial or Residential	Arterial	30 mph – 35 mph
	Collector	25 mph – 35 mph
	Local	
Suburban Fringe	Arterial	35 mph – 45 mph
	Collector	30 mph – 40 mph
	Local	25 mph – 35 mph

Local and arterial streets in the urban core can have speed limits set as low as 20 mph, while most suburban commercial or residential local and collector streets have a speed range between 25 mph to 35 mph. Suburban fringe arterials can have posted speeds up to 45 mph. To further prioritize safety conditions, speed limits can be set outside of the established range if:

- The context of the highway is inconsistent, otherwise difficult to determine, or has very sparse development
- The 50<sup>th</sup> percentile speed is 5 mph or more greater than the range maximum
- The highway has widely spaced public road intersections and few private driveways leading to businesses or residences
- The crash rate for the segment exceeds 150% of the average crash rate for the same functional class of highway within the jurisdiction of the road authority (for small communities, the entire county is used for comparison)
- The segment is contiguous to a residence district
- More than one fatal or serious injury occurred on the segment in the past three years

As part of Speed Zones, speed limit modifications implemented by jurisdictions can be contested and heard by a review panel at the state level. These review panel hearings can go either direction in concluding that established speed limits were set too low or too high. Based on Laura’s estimate, approximately four to six speed limit modifications are contested per year throughout the state.

### Framework for California

A major component of ODOT’s Speed Zones program is temporary speed limits. In Oregon, local agencies can enact a temporary speed limit order on a roadway that received a major geometric change while waiting on ODOT’s speed zone investigation. In some cases, the temporary speed limit sign is covered or removed prior to the investigation, while in other cases, it is left on display. The final speed limit is



determined by the speed zone investigation and is not necessarily the same as the temporary speed limit<sup>14</sup>. The temporary speed limit in Oregon is based on design speed and is enforceable. The option to enact a temporary speed limit following a geometric change but prior to an E&TS currently does not exist in California law.

Enforcement of Oregon's Speed Zones partially relies on fixed speed safety cameras, which are legal in Oregon, but not in California. In Oregon, the fixed Speed Zone cameras record speeders who exceed the posted speed limit by 11 mph or more. While speed safety cameras can reduce enforcement responsibility by patrol officers, speed safety cameras are not believed by ODOT staff to be a significant portion of total speed enforcement throughout the state.

#### *Relevant Resources*

- [ODOT Rule 734-020-0015](#)
- [HB 3055](#)

Resources provided by Laura Jo Prusakiewicz:

- [Speed Zone Manual](#)
- [Allowable Speed Range Flowchart \(including rural\)](#)
- [YouTube Speed Zone trainings prepared by ODOT](#)
- [ODOT Speed Zone Website](#)
- [ODOT Delegated Authority for Speed Zones](#)
- [ORS 810.180\(8\) \(temporary speed limits\)](#)
- [Normal process for establishing speed zones flowchart](#)
- [Process for gaining the delegated authority and basic process](#)

### **Figure 3: ODOT Speed Zoning Process Flowchart**

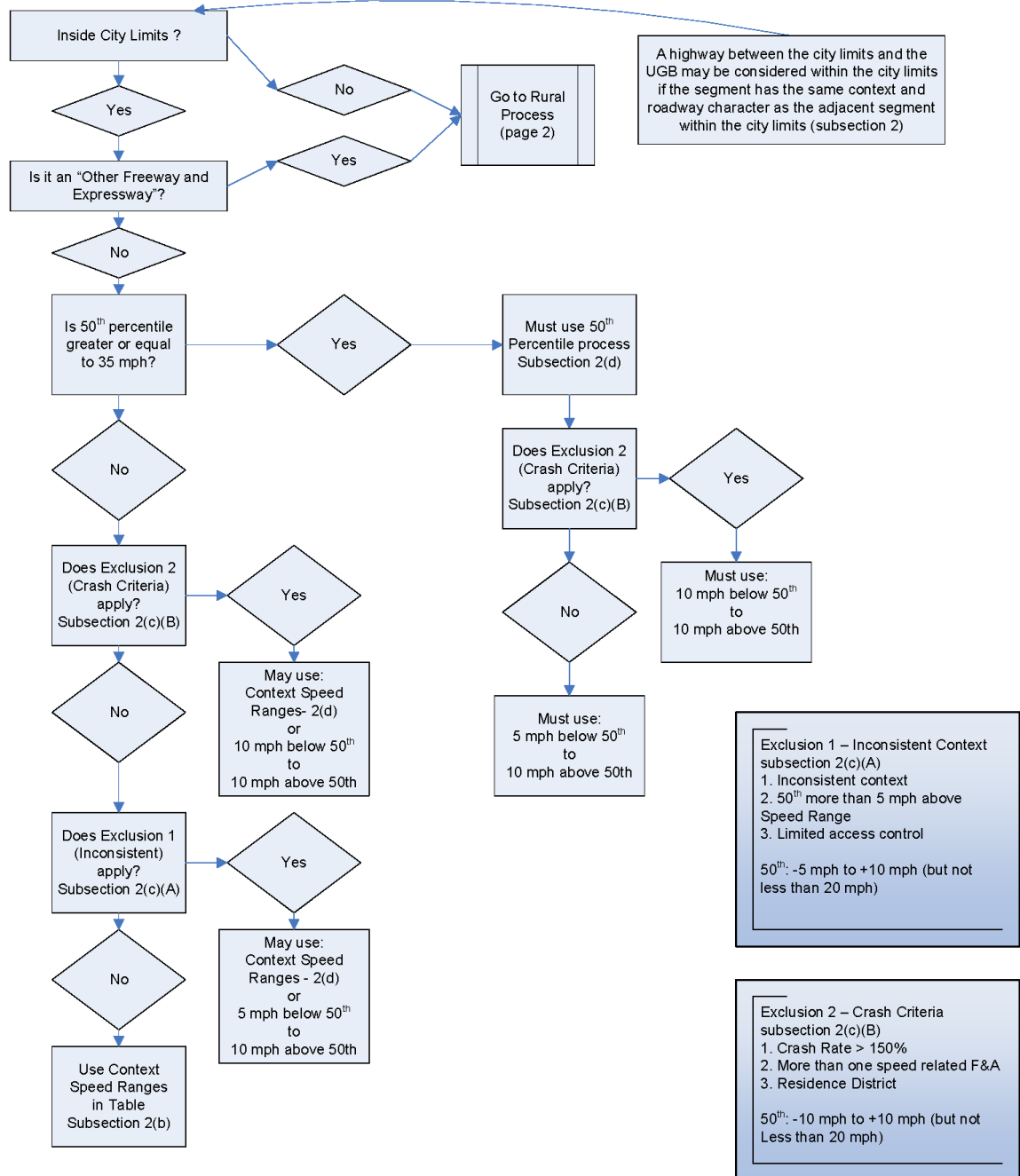
(Next page)

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<sup>14</sup> Email conversations with Laura Jo Prusakiewicz of ODOT, 2023

# Speed Zoning Process - Urban

9/13/2022



DISCLAIMER: This flow chart should only be used as a guidance document. A full understanding of OAR 734-020-0015 is necessary to properly determine allowable speed ranges.

## 6. Chetco Avenue Speed Limit Reduction

<b>Location</b>	<b>Implementation Year</b>
Brookings, Oregon	2021

**Table 10: Chetco Avenue Speed Limit Reduction – Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• State-owned roadway</li> <li>• Small city in rural region</li> <li>• Roadway configuration (varies among seven sections)               <ul style="list-style-type: none"> <li>◦ Downtown area: two travel lanes each direction, parallel parking lane</li> <li>◦ Suburban fringe: two travel lanes in each direction, two-way left-turn lane</li> </ul> </li> <li>• Adjacent land use (varies among seven sections)               <ul style="list-style-type: none"> <li>◦ Ranging from downtown small businesses to suburban fringe</li> </ul> </li> <li>• Crosswalks – some with overhead flashing beacons and others with “stop for pedestrian” signs</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Oregon Speed Zones</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Identified as high-risk pedestrian corridor</li> <li>• Planned pedestrian improvements by ODOT District</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Pedestrian improvements (planned)</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• 50th percentile speeds, pace limit, percentage in pace</li> <li>• Collision history and rate</li> <li>• Adjacent land use</li> <li>• Functional class</li> <li>• Pedestrian and bicycle activity</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• No published evaluation</li> </ul>

This case study is an example of ODOT implementing a speed limit reduction on a state-owned facility in an incorporated city within a rural region.

### Summary

In 2021, ODOT conducted a Speed Zone investigation on a segment of Chetco Avenue, also known as the Oregon Coast Highway (US 101), located in the City of Brookings, Oregon. The purpose of the investigation was to determine whether lower speed limits would be warranted, as the ODOT District was planning on implementing pedestrian improvements in the area, with funding from the statewide Rapid Response Pedestrian Safety program.

The segment was divided into seven sections (A through F), based on existing posted speed and land use context. Based on the investigation, ODOT recommended the reduction of speed limits for two segments of Chetco Avenue – one segment (0.53 mi) from 25 mph to 20 mph and another (0.67 mi) from 35 mph to 30 mph. ODOT cited the following factors that influenced these recommendations:

- 50<sup>th</sup> Percentile Speed
- Pace Limits

- Percentage in Pace
- Roadside Culture
- Pedestrian & Bicycle Use Increases
- Crash Rate Exceeds 150% of the Comparable Crash Rate
- Functional Class and Context

The land use context in which the speed limit was lowered to 20 mph is described as an “urban core with heavy business” and the land use context where the speed limit was lowered to 30 mph is described as “urban mix with moderate business,” according to ODOT’s Technical Memorandum presented to the Brookings City Council.<sup>15</sup> The recommended speed limit reductions were approved by the Brookings City Council in February 2022.

### **Framework for California**

In addition to representing a state-owned roadway, the Chetco Avenue Speed Limit Reduction is noteworthy in that the Speed Zone investigation was conducted in anticipation of engineering-related pedestrian improvements. Developing state policy to encourage speed studies ahead of or in conjunction with engineering countermeasure implementation addresses the "Redundancy is Crucial" Safe System principle. Additionally, it should be noted that of the seven segments evaluated for a potential Speed Zone intervention, only two segments were deemed appropriate for a lower speed limit based on observed speeds and context, which emphasizes the importance of flexibility based on local context.

#### *Relevant Resources*

- [ODOT Chetco Avenue Speed Limit Reduction](#)
- [ODOT Technical Memorandum – Speed Zone Investigation #13411 \(on page 37\)](#)

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<sup>15</sup> City of Brookings City Council Meeting Agenda, February 14, 2022 (page 37)

## 7. Portland Residential and Business District 20 mph Speed Limits

<b>Location</b>	<b>Implementation Year</b>
Portland, Oregon	2017

**Table 11: Portland Residential and Business District 20 mph Speed Limits – Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>Residential streets</li> <li>Business districts</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>Oregon HB 2682 and SB 558</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>Prevalence of speed-related collisions from Portland Vision Zero analysis</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>Increased number of residential speed limit signs</li> <li>Educational campaign “20 is Plenty”</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>Adjacent land use</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>0.53, 1.66, and 0.52 percentage point decrease in vehicles traveling over 25, 30, and 35 mph, respectively</li> </ul>

This case study explains Portland’s alternative method for setting speed limits that predates the Oregon Speed Zones policy, which was established in 2020. Portland must now follow the current Speed Zones state law. However, this study is still relevant because it provides before-and-after data on the proportion of vehicles exceeding 25, 30, and 35 mph following a reduction of the speed limit to 20 mph.

### Summary

The City of Portland found that speed contributed to 47% of all fatal collisions between 2004 and 2013. In response, the Portland City Council approved Ordinance 188774, allowing the City to lower speed limits on all residential streets to from 25 mph to 20 mph in 2018 (before ODOT introduced the new Speed Zones). Residential streets make up 70% of Portland’s street network and often lack bike lanes and marked crosswalks. The city installed additional 20 mph speed limit signage, resulting in over 1,000 additional 20 mph speed limit signs by May 2019. Simultaneously, Portland instituted a “20 is Plenty” educational campaign, distributing more than 7,000 yard signs to local residents.

During the 2017 PedPDX Citywide Pedestrian Plan “Walking Priorities” survey, high speeds on residential streets was identified as one of the top three barriers to walking in the city. This finding is quoted in the Ordinance 188774 text. Ordinance 188774 also stated that a pedestrian hit by a driver at 25 mph is nearly twice as likely to die compared to someone hit at 20 mph.<sup>16</sup>

### Evaluated Outcomes

The Portland 20 mph Speed Limits program was evaluated in a study by Portland State University, which investigated descriptive statistics of common speed measures, including mean (average) speed, median

<sup>16</sup> AAA, 2011, Impact Speed & a Pedestrian's Risk of Severe Injury or Death (quoted in Ordinance 188774)

(50th percentile) speed, 85th percentile speed, and percentage of vehicles traveling greater than 25 mph, 30 mph, and 35 mph. Of the pooled before and after data, the study found a slight increase in mean speed of 0.37%, and no change in the median and 85<sup>th</sup> percentile speeds. The percentage of vehicles exceeding 25 mph, 30 mph, and 35 mph; however, decreased, by 0.53, 1.66, and 0.52 percentage points respectively.<sup>17</sup>

## **Framework for California**

Portland's monitoring and evaluation is useful for understanding the effects that a 5 mph drop in the speed limit can have on vehicle speeds. When the City reduced the speed limit on most residential streets under their 2018 ordinance, the proportion of vehicles travelling over 25 mph, 30 mph, and 35 mph was reduced. To inform decision-making in California, this case study is useful in suggesting that even if mean vehicle speed is not reduced, a reduction in the number of top-end speeders may be associated with speed limit reduction. Additionally, the information campaign "20 is Plenty," which was marketed by the City, is easily adoptable in California, regardless of the specific speed limit or jurisdiction.

### *Relevant Resources*

- [Ordinance 188774 reducing speed limit on residential streets to 20 mph](#)
- [Portland Speed Limits](#)
- [Portland Vision Zero](#)
- [NACTO Case Study](#)
- [Effects of Residential Street Speed Limit Reduction Study](#)
- [ODOT Speed Zone Manual](#)

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<sup>17</sup> Effect of Residential Street Speed Limit Reduction from 25 to 20 mi/hr on Driving Speeds in Portland, Oregon, Anderson, et. al, Portland State University (2020)

## 8. Boston Default Speed Limit Reduction

<b>Location</b>	<b>Implementation Year</b>
Boston, Massachusetts	2017

**Table 12: Boston Default Speed Limit Reduction – Key Considerations**

Consideration	Key Points
<b>Context</b>	Urban Areas <ul style="list-style-type: none"> <li>• Residential streets</li> <li>• Business districts</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Mass. HB 4565</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Rising pedestrian deaths</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Information and publicity campaign</li> <li>• Signage posted throughout city and at gateways into the city</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• City owned streets</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• 0.3% reduction in mean vehicle speeds</li> <li>• 2.1%, 0.5%, and 22.4% fewer drivers exceeding 25, 30, and 35 mph, respectively</li> </ul>

### Summary

The City of Boston reduced the citywide default speed limit from 30 mph to 25 mph in 2017, as part of their Vision Zero program. This was allowed under Massachusetts House Bill 4565 from 2016 which allowed municipalities to set reduced speed limits to 25 mph without a study if it is in the interest of public safety. This speed limit reduction was a blanket measure across the city, implemented on a wide range of street types. Some areas such as school zones, continued to be signed for lower speed limits, and some arterials and limited access highways were signed higher.

### Evaluated Outcomes

A before-after study of sites at which speed limits were lowered revealed an insignificant decrease in mean vehicles speeds. However, there was an observed decrease in the proportion of drivers exceeding 25, 30, and 35 mph. The decrease in the proportion of drivers exceeding 35 mph was most notable, at 22.4%. This before-after study included control sites in Providence, Rhode Island, at which the posted speed limit was not changed. Between the before and after period, the proportions of drivers exceeding 25, 30, and 35 mph at the Providence sites all increased. In this study, all the selected sites did not contain a posted speed limit sign, and all were at least a half mile from schools or speed feedback signs. The evaluation of this implementation did not include collision analysis.<sup>18</sup>

The Boston speed limit change was publicized via advertisements on buses and subways in the city and social media and traditional media outlets throughout the first year after implementation. New speed limit

<sup>18</sup> Lowering the speed limit from 30 to 25 mph in Boston: effects on vehicle speeds; Hu, We, et. al, *Injury Prevention*

signs were posted at gateways into the city or onto city-owned streets, as well as at locations where there were speed feedback signs.

### **Framework for California**

The City of Boston Default Speed Limit Reduction case study showcases the different categories of outcomes speed limit reductions may yield. While the case study evaluation did not reveal a meaningful change in mean vehicle speed, the 22.4% reduction in the proportion of drivers exceeding 35 mph (10 mph above the posted speed) is notable compared to the control site in Providence. Because the likelihood of injury and fatality increases with increased speed, a reduction in the proportion of drivers exceeding 35 mph is an important outcome. This consideration can be useful in deciding where such an intervention may be most beneficial. In locations with a relatively high number of violators driving 10+ mph over the limit, the Boston case study suggests potential benefits. A speed limit setting framework should consider a particular corridor or area's unique violation trends to optimize effectiveness.

#### *Relevant Resources*

- [City of Boston Speed Limit Reduction](#)
- [Speed Limit Study for Boston](#)



## 9. New York City Speed Safety Cameras

<b>Location</b>	<b>Implementation Year</b>
New York City, New York	2013

**Table 13: New York City Speed Safety Cameras – Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• School Zones in Urban Areas</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• New York State Vehicle and Traffic Law (Section 1180-b)</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Prevalence of speeding and severe collisions near schools</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Citywide speed limit reduction</li> <li>• Additional speed limit signage with “Photo enforced” supplemental signs</li> <li>• Roadway design changes throughout city, including speed humps, speed cushions, and lane narrowing</li> <li>• Education campaigns</li> </ul>
<b>Placement Factors</b>	<ul style="list-style-type: none"> <li>• Schools with the most collisions and speeding</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• 73% fewer occurrences of speeding</li> <li>• 35.3% decrease in injury collisions for new camera corridors, compared to 28.6% decrease for control corridors</li> </ul>

### Summary

In 2013, the State of New York granted New York City the authority to pilot a speed safety camera program to deter speeding in school zones. Speed enforcement cameras were installed at 750 school zones by June of 2020, with the deployment focused on areas with the highest incidents of speeding and serious collisions. As of December 2021, speeding at fixed camera locations had dropped by 73%, on average. Along a similar timeline, beginning in 2014, the city reduced the citywide default speed limit to 25 mph. Some streets remained signed higher than 25 mph, but many have been subsequently lowered through 2021.

### Evaluated Outcomes

In addition to the 73% decrease in occurrences of speeding at camera locations, the city studied before and after collision data as well. The city conducted an evaluation of the 2019 camera “cohort,” using before and after collision data for corridors with cameras added in 2019 as well as control corridors without cameras. The 2019 camera corridors had a larger decrease in total injury collisions (35.3%), pedestrian collisions, and vehicle collisions when compared to the control group (28.6% decrease in total injury collisions). Both the 2019 camera corridors and the control corridors had an increase in cyclist collisions between 2018 and 2020, though the increase in the camera corridors was lower, with a 2.5% increase, compared to a 6.1% increase for the control corridors.

The speed cameras capture an image, including the license plate, of vehicles that exceed the speed limit by more than ten miles per hour, which is then reviewed by New York Department of Transportation staff. If determined to be accurate, a notice of liability is issued to the vehicle owner. The fines incurred from

speeding in an SSC zone are significantly lower than those incurred from a summons issued by a police officer (\$50, instead of \$90-\$600), yet these measures have still been successful in reducing the number of drivers speeding. In August 2022, the city expanded the program to operate the speed safety cameras 24/7, instead of just weekdays between 6:00 AM and 10:00 PM, following a new state law signed in June.

## **Framework for California**

Speed cameras are not currently legal in California; however, another form of automated enforcement, red light cameras, is. Due to the dependence of speed cameras on state-level legislation, it is more practical in the immediate term in California to consider the benefits of automated enforcement in general. Red light cameras can be used to indirectly benefit Safe Speeds goals in two ways; signal timing, including coordination, rest-in-red, and automatic recall, as well as reallocation of patrol officer priority and effort.

Because signal coordination relies on an assumed travel speed for “green band” operation, corridors can be coordinated to an appropriate safe speed, in which vehicles traveling above the coordination speed will not experience the green band. The assumed travel speed for signal coordination can be communicated with signage, alerting drivers they will experience the green band should they drive at a particular speed.

Similarly, during off-peak times, such as at nights and weekends, signals along a corridor with observed unsafe speeds can be set to automatic recall of the minor streets. In this situation, a call is automatically placed on the minor street approach each cycle, regardless of demand, resulting in a red signal for the major street, forcing some major street drivers to stop and thus reduce their potential for reaching unsafe speeds. Alternatively, signals may be set to rest-in-red operation, in which a phase does not receive a green indication until a vehicle reaches the detector. Such strategies can be applied along corridors in which off-peak speeds are a concern, whether the posted speed limit is modified or not. These signal operation strategies are only effective if drivers obey the red light. Thus, pairing such countermeasures with automated red-light enforcement can increase compliance.

Automated red-light enforcement can also indirectly benefit a Safe System by allowing patrol officers to focus on speed limit enforcement, as opposed to red light violations. By re-allocating resources and taking advantage of existing laws in California, a context-based Safe System Approach can be pursued.

In addition to automated enforcement possibilities, the New York case study highlights the importance of context in Safe Speed intervention, by focusing specifically on school zones. School zones are good candidates for systemic application of countermeasures because they generally see high numbers of vulnerable road users, such as school-aged children walking and biking to school. Other areas with vulnerable road users, such as near senior-serving facilities or encampments for unhoused people, could also be considered for systemic pairing with automated enforcement.

### *Relevant Resources*

- [NYC ASE Program 2014-2020 Report](#)
- [ASE Now Operates 24/7 in NYC](#)

# California Case Studies

The following three case studies illustrate what cities can do to set safer speed limits within California's current legislative framework. Sacramento enacted citywide speed limit changes to streets within school zones. San Francisco focused their improvements on a specific neighborhood, combining speed management with other roadway design features in one case study and utilized unofficial advisory signage to encourage safer driving behavior in another.

## Introduction

The California Vehicle Code (CVC), including modifications made by AB 43, allows various options for local flexibility in speed limit setting. While some specific options discussed in the *Beyond California Case Studies* are not currently permitted under California law, options for jurisdictions to enact a Safe System Approach to Speed Limit Setting do exist. The approaches utilized by the two cities in the *California Case Studies* are relatively uncommon within the state, for a variety of potential reasons, such as decision makers' limited understanding of complex existing law, concern about a lack of precedent examples utilizing non-traditional speed limit setting approaches, a lack of resources to investigate options, or a perceived lack of need for the interventions described. Despite potential administrative complexities, the cities of Sacramento and San Francisco have leveraged existing law in California to proactively set safe speed limits based on specific needs citywide or in certain areas. The purpose of the *California Case Studies* section is to illuminate and provide discussion on these opportunities.

## 10. Sacramento Vision Zero: Reducing School Speed Zones

<b>Location</b>	<b>Implementation Year</b>
Sacramento, California	2019

**Table 14: Sacramento School Speed Zones - Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• Citywide school zones</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• California Vehicle Code</li> <li>• California AB 321</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Sacramento had the most “pedestrian under the age of 15” KSI collisions of any city in California in 2016</li> <li>• Vision Zero Action Plan</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Speed limit signage (for new speed limits)</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• Proximity to schools</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• Not yet evaluated, based on 2023 correspondence with City staff</li> </ul>

This case study shows how cities can implement citywide speed limit changes under existing legislation and the California Vehicle Code (CVC). Additionally, Sacramento focuses on Safe Speeds for vulnerable users, such as school children, by reducing speed limits on roads within school zones. This methodology reflects the Safe System key principle that “Humans are Vulnerable.” Focusing on the most vulnerable road users, such as children, is logical starting point for creating a Safe System.

### Summary

Between 2009 and 2015, 151 people lost their lives in a roadway collision in Sacramento. The City’s Vision Zero Action Plan identified high speeds as a leading cause of collisions, particularly collisions resulting in fatalities. Although streets with speed limits of 40 mph and above make up just 10% of Sacramento’s street network, two-thirds of all fatal collisions occur on these streets. Creating safe conditions around schools is a priority, as children are considered vulnerable road users. The City of Sacramento identified that 83 of its elementary, middle, and high schools are on the high injury network (HIN), the City’s streets where the highest concentration of collisions resulting in fatal or severe injuries (KSI) for pedestrians and bicyclists occur.

The City of Sacramento began reducing speed limits on qualified streets in 2019 as permitted by AB 321 (2008), which allowed posted speeds as low as 15 mph on roadways with the following requirements:

- Public and private schools, grades K-12
- Roadways within 500 feet of a school entrance
- The roadway must be residential in nature
- A maximum posted speed limit of 30 mph
- A maximum of two through travel lanes

225 roadway segments near 115 schools qualify for the reduced speed limit to 15 or 20 mph. By February 2020, approximately 297 signs were replaced to show the new reduced speed limit and 71 additional signs were posted along these qualified roads.

### **Framework for California**

Given that this case study is set in California, the speed limit reductions are legislatively possible in other areas, including on qualifying Caltrans facilities. While Sacramento focused primarily on school zones, the underlying Safe System principle of “Humans are Vulnerable,” and the focus on the most vulnerable populations applies to many roadway users. Increasing proactive speed limit setting in areas with a high numbers of vulnerable road users, as defined in CVC 627, beyond just school children, can lead to a safer system for California roadways. The CVC section 627 defines vulnerable pedestrian groups as children, seniors, persons with disabilities, users of personal assistive mobility devices, and the unhoused. Many of these groups are associated with particular trip generators, such as senior centers and assisted care facilities, or areas with encampments for unhoused residents. With permanent or semi-permanent trip generators, legislation could allow jurisdictions to focus on a wider variety of land uses and trip generators serving vulnerable populations, applying an approach similar to what Sacramento did for schools.

#### *Relevant Links*

- [Sacramento Speed Zones](#)
- [Sacramento Vision Zero Action Plan](#)
- [CVC Section 22358.4](#)
- [AB 321](#)

## 11. Tenderloin Speed Limits and No Turn on Red

<b>Location</b>	<b>Implementation Year</b>
San Francisco, California	2021

**Table 15: Tenderloin Speed Limits and No Turn on Red – Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• Neighborhood-wide</li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• California Vehicle Code</li> <li>• SFMTA Board of Directors action and hearing</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• KSI collision incidence ten times higher than rest of City</li> <li>• Every street in Tenderloin is part of SF VZ HIN</li> <li>• Relatively high concentration of vulnerable road users, including unhoused population</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• Right turn on red restrictions and signage, including electronic signage at key locations</li> <li>• New speed limit signs</li> <li>• Public information signage and digital ads, in multiple languages</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• Survivability of 20 vs 25 mph pedestrian collision (pedestrian struck by vehicle traveling 20 mph vs 25 mph has double the chance of surviving)</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• No change in corridor median vehicle speeds (evaluation of nine-corridor SFMTA 20 mph Program, only one published corridor is in Tenderloin)</li> </ul>

San Francisco’s intervention in the Tenderloin district shows how a city, under current California law, can pair Safe Speed improvements with Safe Road design, consistent with the “Redundancy is Crucial” principle of the Safe System Approach.

### Summary

Severe and fatal collision rates in the Tenderloin neighborhood of San Francisco are ten times higher than in the rest of the city. Every street in the Tenderloin is part of the City’s High Injury Network (HIN). Tenderloin is a dense, urban, mixed-use neighborhood adjacent to the civic center and central business district of San Francisco. The neighborhood is also home to a highly-visible unhoused population.

In an effort to improve safety in the Tenderloin, the San Francisco Municipal Transportation Agency (SFMTA) Board of Directors voted in March 2021 to reduce the neighborhood speed limit to 20 mph on 17 corridors in the Tenderloin, most of which previously had a 25-mph speed limit. SFMTA informed road users of this change by posting new speed limit signs on each block and electronic signage at key locations. They also initiated a multilingual advertising campaign which included digital ads, bus shelter posters, and light pole banners to alert drivers to the change. In addition to the speed limit improvements, SFMTA also added “no turn on red” regulations at over 50 intersections in Tenderloin, which were approved at a February 2021 public hearing. Restricting right turns on red (RTOR) aims to improve safety and reduce collisions by keeping crosswalks clear of vehicles during pedestrian phases so that pedestrians may safely cross.

As of March 2023, SFMTA concluded an evaluation of nine corridors throughout the city on which new 20 mph speed limits were implemented, including one in the Tenderloin. Based on preliminary data from SFMTA, there was no average difference in median vehicle speed (the only metric published during the time of this report) among the aggregated corridor data before and after the implementation; however, it is critical to note that both the pre- and post-implementation median speed on most of the corridors is below 20 mph. Additionally, median speed is only one of many vehicle speed metrics that provide insight into driving behavior and safety implications. SFMTA has evaluated additional metrics and plans to publish the results in a factsheet to be released in April or May of 2023.

## **Framework for California**

Given the Tenderloin's land use context and the prominence of its corridors on the HIN, this project serves as an example of the application of speed limit setting flexibility for Safety Corridors and business districts under existing California law, designations that could apply to some Caltrans facilities. Many cities' HINs include state facilities, and the forthcoming District Safety Plans will also develop HINs for Caltrans. Beyond legislative feasibility, this case study demonstrates the pairing of speed limit reduction with other safety improvements. SFMTA combined speed reductions with informational signage (new speed limit signs and multilingual ads alerting drivers to the change) and operational improvements (restricting right turns on red) with the goal of improving roadway safety in the Tenderloin. This approach is consistent with developing a Safe System Approach by focusing on three elements of the system: Safe Speeds, Safe Road Users, and Safe Roads. Speed limit changes on Caltrans facilities could be combined with vertical and horizontal design elements, operational changes, and speed safety cameras (if allowable in the future) for an approach further supportive of a Safe System.

### *Relevant Links*

- [Tenderloin Speed Limits and No Turn on Red](#)
- [SFMTA Speed Management](#)
- [Tenderloin NRTOR Evaluation](#)

## 12. San Francisco Slow Streets

<b>Location</b>	<b>Implementation Year</b>
San Francisco, California	2020 to Present

**Table 16: San Francisco Slow Streets – Key Considerations**

Consideration	Key Points
<b>Context</b>	<ul style="list-style-type: none"> <li>• Residential Streets near commercial corridors               <ul style="list-style-type: none"> <li>◦ Stop-controlled</li> <li>◦ Not emergency response or MUNI corridors</li> </ul> </li> </ul>
<b>Policies or Legislation</b>	<ul style="list-style-type: none"> <li>• Citywide Slow Streets Initiative</li> </ul>
<b>Reason for Intervention</b>	<ul style="list-style-type: none"> <li>• Need for active transportation safety and increased public space</li> </ul>
<b>Complementary Countermeasures</b>	<ul style="list-style-type: none"> <li>• “Slow Street” signs</li> <li>• Local Traffic Only signs</li> <li>• Impermanent barriers at entry points to limit flow</li> <li>• Traffic diversion elements, turn restrictions, speed humps, stop signs, chicanes, wayfinding signs, pavement markings at some locations</li> </ul>
<b>Speed Limit Setting Factors</b>	<ul style="list-style-type: none"> <li>• Community input and need</li> </ul>
<b>Measured Outcomes</b>	<ul style="list-style-type: none"> <li>• 14% decrease in median vehicle speeds</li> <li>• 36% decrease in collisions</li> </ul>

### Summary

In 2020, in response to COVID-19 pandemic shelter-in-place orders, the San Francisco Mayor’s office implemented a network of slow streets throughout the City. This program, while not officially modifying speed limits, sought to reduce the average speed on corridors to 15 mph or less by implementing signage designating a “slow street” for “local traffic only”, along with traffic diversion elements (including planters), turn restrictions, speed humps, stop signs, chicanes, wayfinding signs, and pavements markings in some locations. These campaigns have typically been implemented on corridors with stop-sign control that are not MUNI routes or emergency response corridors. This program has resulted in a 14% decrease in median vehicle speeds and a 36% decrease in collisions.

### Framework for California

The San Francisco Slow Streets program serves as an example of educational, non-enforceable Safe Speeds interventions that yielded a decrease in observed vehicle speeds and collisions. While such a program lacks scalability (the program is limited to residential streets that fit a certain profile, described above), it proved useful in addressing roadway safety in specific contexts. Because the program did not involve speed limit modification or engineering countermeasures, it is quickly and easily implementable and adaptable, and can be used on a case-by-case basis where a need for drawing attention to Safe Road Users behavior exists. A Slow Streets program aimed at residential roadways is likely not appropriate for most Caltrans facilities, though the underlying principle of quick, low-cost education campaigns supportive of Safe Road Users and Safe Speeds elements without posted speed limit adjustment or engineering countermeasures can apply to a variety of facilities.



*Relevant Links*

- [Program Information](#)
- [Program Evaluation Report](#)
- [Project FAQ](#)

# Agency Conversations

**Table 17** summarizes key takeaways from conversations with agency staff around the country. Some agencies plan to publish before and after evaluation of the Safe System Approaches to speed limit setting, but not within the timeline of this report.

**Table 17: Agency Conversations Summary**

Agency	Program of Interest	Program Overview	Conversation Summary and Considerations Raised by Staff
<b>Cambridge, MA</b>	<i>Citywide Speed Limit Reduction and Safety Zones</i> <sup>19</sup>	<ul style="list-style-type: none"> <li>Lowered default citywide speed limit from 30 to 25 mph</li> <li>Reduced further to 20 mph in Safety Zones</li> </ul>	<ul style="list-style-type: none"> <li>City is working on evaluation, no definitive timeline</li> <li>Particularly interested in considering exposure data (i.e., bicycle volume) to standardize collision rates</li> </ul>
<b>Fremont, CA</b>	<i>"Drive Slow, Be Healthy"</i>	<ul style="list-style-type: none"> <li>20 mph advisory speed for residential streets</li> </ul>	<ul style="list-style-type: none"> <li>85<sup>th</sup> percentile measurements are not reflective of most conditions due to congestion</li> <li>Countermeasures/speed limit adjustments are highly dependent on context</li> </ul>
<b>ODOT</b>	<i>Oregon Speed Zones</i>	<ul style="list-style-type: none"> <li>Discussed in the 5. <i>Oregon Speed Zones</i> section of this report</li> </ul>	<ul style="list-style-type: none"> <li>ODOT working on <i>SPR854</i> evaluation study</li> <li>Further discussed in 5. <i>Oregon Speed Zones</i> section of this report</li> </ul>
<b>Clackamas County, OR</b>	<i>Local Speed Zone changes</i>	<ul style="list-style-type: none"> <li>Various local speed limit modifications under Oregon Speed Zones</li> </ul>	<ul style="list-style-type: none"> <li>County plans to do before-after evaluation of corridors with reduced speed limits, indefinite timeline</li> </ul>
<b>SFMTA</b>	<i>20 mph Corridors Evaluation (Including Tenderloin)</i>	<ul style="list-style-type: none"> <li>20 mph corridors program, similar to that discussed in 11. <i>Tenderloin Speed Limits and No Turn on Red</i> section of this report</li> </ul>	<ul style="list-style-type: none"> <li>City has completed evaluation and shared preliminary data, but full factsheet is forthcoming in April or May of 2023</li> </ul>

<sup>19</sup> City Limits: Case Studies in Lowering Speed Limits, National Association of City Transportation Officials (NACTO)

# Recommendations to SafeTREC

The *Beyond California Case Studies* and *California Case Studies* reveal key concepts, both opportunities and limitations, for Caltrans to consider while embracing a Safe System Approach for speed limit setting. **Table 18** includes recommendations, based on the case studies presented in this report, for Caltrans to further consider. These recommendations are drawn from conceptual and technical principles revealed in the case studies and from correspondence described in the *Agency Conversations* section of this report. Some may require legislative change to be implemented.

**Table 18: Context-Based Recommendations**

Context Comes First		
Case Study Key Point	Implication	Potential Action
The City of Brookings studied several segments of the same roadway, but only lowered the speed limit on two of those segments - based on context and observed speed determination in Oregon's Speed Zones methodology.	Emphasizes the importance of evaluating locations on a hyper-local level to determine appropriateness of speed limits.	Expand specificity of local context definitions in current law, such as sub-categories of business districts, based on specific land uses.
ODOT's Speed Zones program includes a distinction for "rural communities," which is based on corridor characteristics, regardless of incorporation status.	While the principle of "rural communities" could be indirectly derived through current California law language, including this straightforward term could make local flexibility options more accessible to under-staffed rural agencies for which it applies.	Include more descriptive special definitions in guidance that helps communities identify which options are relevant/applicable.
New York City's SSC was deployed near schools and speeding at those locations decreased.	Speed limit setting can be systemic, focusing on a particular subset of vulnerable roadway users, and based on locations that serve those users.	Consider a methodology that starts with people (vulnerable groups) and then continues to context (built environment), such as a SSC pilot near schools.

<p>Boston, Portland, Seattle, and SFMTA (Tenderloin) all undertook highly consistent, across-the-board (citywide or neighborhood-wide) speed limit modifications based on context, many of which saw a reduction in top-end speeders.</p>	<p>Across-the-board default speed limits may reduce flexibility but could improve driver understanding of speed limits. Consistency doesn't need to be citywide or even neighborhood-wide but could have a level of consistency that everyday users, not just traffic engineers, can understand and remember.</p>	<p>Consider default speed limits that are easily communicated and memorable as to their context (i.e., "20 in the Tenderloin"), not just posted on speed limit signs.</p>
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**Redundancy is Crucial in a Safe System**

<i>Case Study Key Point</i>	<i>Implication</i>	<i>Potential Action</i>
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<p>The City of Seattle introduced context-based speed limits with infrastructure countermeasures, while the City of Brookings evaluated speed limits in anticipation of infrastructure countermeasures.</p>	<p>A truly Safe System Approach requires redundancy across elements at all stages of safety evaluation – <i>whether the speed limit is modified or not.</i></p>	<p>Allow for "temporary speed limits," like that described in 5. <i>Oregon Speed Zones</i>, for simultaneous countermeasure and speed limit implementation, if the countermeasure changes the context.</p>
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<p>New York City leaned-into enforcement, while the City of Seattle emphasized engineering redundancy in pedestrian safety.</p>	<p>While inclusion of more Safe System elements increases redundancy, complementary countermeasures do not need to be limited to engineering design; enforcement, including automated enforcement, can complement the speed limit.</p>	<p>Consider alternatives to speed safety cameras, which are not currently legal in California. Potential options could include automated red-light enforcement combined with speed-related signal timing modifications, such as lower "green band" coordination travel speeds, automatic recall of minor streets or pedestrian signals on high-speed corridors, or signal rest-in-red during off-peak hours.</p>
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<p>SFMTA introduced right-turn-on-red restrictions in the Tenderloin along with 20 mph speed limits.</p>	<p>While speed-related collisions may be the impetus for investigation into a certain corridor or area, implementation that supports a Safe System should not be limited to speed-related countermeasures.</p>	<p>Consider preparing a list of "bundle-ready" countermeasures, which can be rolled out in complement to speed limit modifications at a relatively low cost, depending on the context. Potential countermeasures could include RTOR restrictions, increased number of speed limit signs, quick-build curb extensions, larger stop signs, leading pedestrian intervals, etc.</p>
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<p>Seattle installed additional posted speed signs on some corridors, without a speed limit modification, and still observed a decrease in high-end speeders.</p>	<p>If speed-related collisions are an issue along a corridor, what is the root cause of the speed?</p> <p><i>Is the speed limit too high?</i></p> <p><i>Is the speed limit appropriate, but drivers just are not aware of the speed limit?</i></p> <p><i>Are drivers aware of the speed limit, but do not follow it?</i></p> <p>Answering these questions incorrectly could lead to the wrong solutions.</p>	<p>When investigating corridors with a high percentage of high-speed collisions, leverage collision data as well as traffic stop data to attempt to identify the root cause of speeding. If this data is not available, coordinate with law enforcement to attempt to collect this data in the future.</p>
<p>Boston, Portland, and SFMTA introduced informational signage, in multiple languages, to educate the public on the new speed limits, including “20 is plenty” and “20 in the Tenderloin” slogans.</p>	<p>Not only can informational signage help to alert drivers of the speed limit changes, but it can help the public understand the root cause of the intervention – to save lives, not to create speed traps.</p>	<p>Include customized, memorable, and relatable informational signage to get drivers accustomed to modified speed limits and anchor the changes in Safe System goals. Collaborate with leaders in the individual community receiving the modification to create a unique and community-specific educational campaign.</p>